Abstract

University Course Timetabling aims to allocate the resources to the available time slots in order to meet a constraint-satisfaction on the elements in the lectures. Many algorithms are developed to solve University Course Timetabling Problem (UCTP). On this research, one of data mining technique called Hybrid-Dimension Association Rules (HDAR) using Apriori algorithm was applied to get the dependency relationships between items in a set of records that involve more than one different predicate and used repeatedly as the initialization of the optimization techniques, Particle Swarm Optimization (PSO) with the aim of directing PSO initialization to the optimal solution from the beginning in order to accelerate the execution of PSO in finding the global maximum value. After the two techniques implemented, then performed a comparative analysis results between UCTP using PSO and UCTP using PSO and HDAR. As a result, HDAR only gives impact on the execution time of the system but not gives any effect on the final penalty.

Keywords: university course timetabling, data mining, hybrid-dimension association rules, particle swarm optimization.